REMARKS

Claims 1-53 are pending. Claims 9 and 17-53 were withdrawn from consideration. Claims 1-8 and 10-16 were rejected under 35 U.S.C §112, first paragraph. Claims 1, 5, 8, 10, and 11 were rejected under 35 U.S.C. §112, second paragraph, and claims 1-8 and 10-16 were rejected under 35 U.S.C. § 102. Each of these rejections is addressed as follows.

Rejections under 35 U.S.C. § 112, first paragraph

Claims 1-8 and 10-16 were rejected under 35 U.S.C §112, first paragraph. This rejection is addressed below.

Applicant has now amended claim 1 to require that, in the claimed method, a plant cell overexpresses a nucleic acid molecule encoding a calcium dependent protein kinase (CDPK) polypeptide, wherein the nucleic acid molecule is selected from the group consisting of (i) a nucleic acid molecule encoding a polypeptide of SEQ ID NO:1 and (ii) a nucleic acid molecule encoding a polypeptide having at least 80% identity to the polypeptide of SEQ ID NO:1. Support for this amendment is found, for example, on page 5 (ll. 7-11) of the specification. The scope of claim 1 is now limited to sequences that are highly identical, and therefore necessarily structurally similar to the disclosed SEQ ID NO:1. In addition, Applicant submits that the specification provides an adequate written description of the nucleic acid molecules required for use in the claimed method. Moreover, with the recitation of the specific identity of SEQ ID NO:1 and nucleic acid

molecules that encode a polypeptide that is 80% identical to SEQ ID NO:1 in the claims, no undue trial and error experimentation would be required to identify nucleic acid molecules encompassed by the claims.

Furthermore, one skilled in the art could easily test whether overexpression of any of the aforementioned nucleic acid molecules conferred disease resistance using, for example, the methods disclosed at pages 26-30 of the specification. There, applicant discloses assays useful for determining whether plants expressing a CDPK polypeptide fall within the claims are useful for conferring a disease resistant phenotype. Thus, one need only identify plants overexpressing a CDPK nucleic acid molecule and then test whether its expression results in disease resistance. Such testing involves standard methodologies in the art of plant molecular biology, and cannot constitute undue experimentation.

No new matter has been added by any of these amendments, and applicant notes, for the record, that the current claim amendments were made solely for the purpose of expediting prosecution. Applicant reserves the right to pursue all canceled subject matter in this or future related applications.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 1, 5, 8, 10 and 11 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claim 1, and claims 2-8 and 10-16 dependent thereon, were deemed indefinite in the recitation of "disease resistance." Applicant has amended claim 1 to refer to "an increased level of resistance to a disease-causing pathogen," a phrase that is defined in the specification, for example, at page 9 (ll. 14) – page 10 (ll. 1). Additionally, the specification, at, for example, page 7 (ll. 23) – page 9 (ll. 13) describes a number of disease-causing pathogens, including exemplary bacteria, fungal, and viral pathogens, as well as pathogenic nematodes. This basis of the rejection should therefore be withdrawn.

Claim 1, and claims 2-8 and 10-16 dependent thereon, were also deemed indefinite in the recitation of "providing." As the term "non-naturally occurring" has been removed from the claim, this basis for the rejection is now moot.

Claim 1, and claims 2-5 dependent thereon, were deemed indefinite in the recitation of "non-naturally occurring plant cell." This term has been removed from the claims, and this basis for the rejection is now moot.

Claim 5 was deemed indefinite in the recitation of "plant pathogen." In particular, the Office contends that it is unclear what types of pathogens are encompassed by the claims, as plants are susceptible to a multitude of different pathogens. Given that applicant's specification, for example, at page 7 (ll. 23-27), defines this term, applicant believes this term to be definite, and the rejection should be withdrawn.

Claim 8 was deemed indefinite in the recitation of "CDPK2." Applicant has amended the claim to refer to the polypeptide of SEQ ID NO:1, and this rejection may

now be withdrawn.

Claim 10 was deemed indefinite in the recitation of "consists essentially of." The Office contends "it is unclear what would not materially affect the CDPK polypeptide used." Applicant points out that the claim simply refers to a CDPK polypeptide that consists of the CDPK protein kinase domain itself, absent other portions of the full-length molecule. Applicant has amended the claim accordingly to reflect this meaning. One skilled in the art would appreciate what is meant and encompassed by this term, and this basis for the rejection of claim 10 may be withdrawn.

Claim 11 was deemed indefinite in the recitation of "constitutively-active CDPK polypeptide." In particular, the Office contends "it is unclear what specific activity would be constitutive." Applicant notes that one of skill in the art would readily understand the term to refer to a CDPK (i.e., a calcium-dependent protein kinase) that persists in its active state. This meaning would be understood by those skilled in the art, particularly in view of applicant's specification, see for example, page 12 (ll. 8) – page 13 (ll. 22). On this basis alone, the indefiniteness rejection should be withdrawn.

In addition, as stated by the court in *Miles Laboratories v. Shandon, Inc.*, 997 F.2d 870, 875, 27 U.S.P.Q.2d 1123, 1126 (Fed. Cir. 1993):

> [T]he test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. . . . If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more.

In view of cases such as *Miles Laboratories*, the § 112, second paragraph, rejection should also be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 1-2, 4-8, 11-13 and 16 were rejected under 35 U.S.C. 102(b) as being anticipated by Lusso et al. (WO 99/02655). Claims 1-8 and 10-16 were also rejected as anticipated by Sheen (WO 98/26045).

Applicant's claims, as amended, require (i) a nucleic acid molecule encoding a polypeptide of SEQ ID NO:1 or a nucleic acid molecule encoding a polypeptide having at least 80% identity to the polypeptide of SEQ ID NO:1. Nowhere are such nucleic acid molecules taught by WO 99/02655. The rejection based on WO 99/02655 should therefore be withdrawn.

Turning to WO 98/26045, applicant notes that this reference teaches the discovery of using a CDPK to protect a plant against stresses such as drought, salinity, cold, and heat. To serve as an anticipatory reference, WO 98/26045, however, must disclose every limitation of the claimed method, either explicitly or inherently. In order for a disclosure to be inherent, the missing descriptive matter must necessarily be present in the prior art reference such that one skilled in the art would recognize such a disclosure. This requirement was clearly delineated in *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264 (Fed. Cir. 1991):

> To serve as an anticipation when the reference is silent about

> the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. *Id* at 1268.

It is not inherent in the disclosure of WO 98/26045 that the engineered plant cells were resistant to disease. The cited reference is silent on whether CDPK regulates disease resistance genes, and there is no evidence indicating that disease resistance is necessarily present. The Office's retrospective view of inherency of the claimed invention based on applicant's specification is not a substitute for a teaching supporting an anticipation rejection and, as is indicated above, this is not an appropriate basis for a rejection under 35 U.S.C. § 102. The Office must provide some evidence in the prior art that describes the missing element of claim 1 (i.e., increasing the level of resistance to a disease-causing pathogen). Based on the foregoing remarks, Applicant requests that the rejection of the claims under 35 U.S.C. § 102 be withdrawn.

Additional dependent claims

Applicants add new claims 54-57. Support for these claims is found throughout the specification, for example, at pages 4 (ll. 10-21) and 5 (ll. 7-11). No new matter has been added. A check for $36.00 in payment of these claims is enclosed.

Information Disclosure Statement

Applicant notes that the Office has indicated that it will provide Applicant, prior to the close of prosecution, with an initialed and dated copy of the Form PTO-1449 included with the Information Disclosure Statement mailed on December 20, 2002.

CONCLUSION

Applicant submits that this case is in condition for allowance, and such action is respectfully requested.

If there are any charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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James D. DeCamp, Ph.D.
Reg. No. 43,580

Clark & Elbing LLP
101 Federal Street
Boston, MA 02110
Telephone: 617-428-0200
Facsimile: 617-428-7045